P-7326.03 DIV2

Application of Woloszko et al. MEDICAL ELECTRICAL LEAD

A system for providing medical electrical stimulation comprising: a first medical electrical lead having a first lead body and a first electrode portion, the first electrode portion coupled to the first lead body, the first lead body having a first proximal section and a first distal section, the first distal section thinner than the first proximal section.

- 2. A system for providing medical electrical stimulation according to claim 1 further comprising: a second medical electrical lead having a second lead body and a second electrode portion, the second electrode portion coupled to the second lead body, the second lead body having a second proximal section and a second distal section, the second distal section thinner than the second proximal section;
- a suture sleeve position on each proximal end of the lead bodies; and a stabilizing block positioned on the distal end of the lead bodies, the stabilizing block having means for stabilizing each of the electrode portions of the lead from moving out of position once they have been implanted while the other leads are being implanted.
- 3. A system for providing medical electrical stimulation according to claim 2 wherein the means of stabilizing comprise a pliant polymer block having a series of slots, the slots dimensioned to frictionally engage with the each lead body.
- 4. A system for providing medical electrical stimulation according to claim 2 wherein the electrode portion comprises a root portion, a semi-cylindrical cuff extending from the root portion in the first radial direction, a long flap extending from the root portion in a second radial direction, the long flap extending over at least a portion of the semi-cylindrical cuff, and a short flap extending from the root portion in a first radial direction, the short flap extending over at least a portion of the long flap.

- 5. A system for providing medical electrical stimulation according to claim 4 further comprising the first radial direction between 90 and 270 degrees.
- 6. A system for providing medical electrical stimulation according to claim 5 further comprising the second radial direction between 180 and 360 degrees.
- 7. A medical electrical lead comprising: a lead body having a first conductor covered by an insulation, the lead body having a proximal end and a distal end; a cuff assembly coupled to the distal end of the lead body, the cuff assembly having a semi-cylindrical cuff having a first, second and third recesses therein, a first tab electrode positioned at the bottom of the first recess, a second tab electrode positioned at the bottom of the second recess, a third tab electrode positioned at the bottom of the third recess, wherein each recess has an overhang, the overhang partially covering at least a portion of at least two sides of each tab electrode, wherein the first and third tab electrodes are coupled to the first conductor.
- 8. A medical electrical lead according to claim 7 further comprising the lead body having a second conductor, the second tab electrodes coupled to the second conductor.
- 9. A medical electrical lead according to claim 7 wherein the recess extends from an inner surface of the cuff to a depth corresponding to the midpoint of the cuff thickness, the tab electrode positioned at the midpoint of the cuff thickness at the bottom of the recess.
- 10. A medical electrical lead according to claim 7 further comprising the cuff assembly having a root portion, the semi-cylindrical cuff extending from the root portion in a first radial direction, a long flap extending from the root portion in a

second radial direction, the second radial direction opposite the first radial direction.

- 11. A medical electrical lead according to claim 10 wherein the long flap extends over at least a portion of the semi-cylindrical cuff.
- 12. A medical electrical lead according to claim 10 further comprising a short flap extending from the root portion in the first radial direction, the short flap extending over at least a portion of the long flap.
- 13. A medical electrical lead according to claim 10 further comprising the first radial direction between 90 and 270 degrees and the second radial direction between 180 and 360 degrees.
- 14 A nerve cuff electrode comprising

a semi-cylindrical cuff, the semi-cylindrical cuff having a longitudinal axis and an inner surface, a first recess within the inner surface, the first recess not parallel to the longitudinal axis, the first recess having a bottom surface and opposing side walls, the first recess having a first width, the first width greater between the side walls nearest the bottom surface and smaller between the side walls nearest the inner surface such that a opposing pair of shoulder overhangs are present, a tab electrode positioned within the recess such that opposing pair of shoulder overhangs cover side portions of electrode to thereby mechanically maintain electrode within the recess.

- 15. A medical electrical lead according to claim 14 further comprising the lead body having a second conductor, the second tab electrodes coupled to the second conductor.
- 16. A medical electrical lead according to claim 14 wherein the recess extends

from an inner surface of the cuff to a depth corresponding to the midpoint of the cuff thickness, the tab electrode positioned at the midpoint of the cuff thickness at the bottom of the recess.

- 17. A medical electrical lead according to claim 14 further comprising the cuff assembly having a root portion, the semi-cylindrical cuff extending from the root portion in a first radial direction, a long flap extending from the root portion in a second radial direction, the second radial direction opposite the first radial direction.
- 18. A medical electrical lead according to claim 17 wherein the long flap extends over at least a portion of the semi-cylindrical cuff.
- 19. A medical electrical lead according to claim 17 further comprising a short flap extending from the root portion in the first radial direction, the short flap extending over at least a portion of the long flap.
- 20. A medical electrical lead according to claim 17 further comprising the first radial direction between 90 and 270 degrees and the second radial direction between 180 and 360 degrees.
- 21. A medical electrical lead according to claim 17 further comprising the semicylindrical cuff further comprising second and third recesses therein, a first tab electrode positioned at the bottom of the first recess, a second tab electrode positioned at the bottom of the second recess, a third tab electrode positioned at the bottom of the third recess